City of San Jose–

A Commitment to building green

PROVIDED BY THE CITY OF SAN JOSE ENVIRONMENTAL SERVICES DEPARTMENT (GREEN BUILDING PROGRAM)

On June 19, 2001, the San Jose City Council adopted green building policies that placed San Jose at the frontier of sustainable design. These steps demonstrated a recognition of the life-cycle costs of our municipal facilities over an assumed operational life of 50 years. The City's green building policy underscores the importance of designing and building facilities that prioritize: energy and water efficiency, occupant health and satisfaction, green operations and maintenance practices, and leaving a smaller environmental footprint.

There are many projects that are in the green building pipeline for the City of San Jose, and others that have already been delivered. Recently, the West Valley Library received LEED™ certification from the United States Green Building Council (USGBC) making it the first public library in the United States with such a certification. "The new West Valley Library is a remarkable facility—a real treasure in West San Jose," says San Jose City Councilmember and green building champion Linda J. LeZotte. "The City has been out front with our Green Building Program. To have the first LEED™ certified library in the United States in San Jose is a tribute to the City's very real commitment to investing in sustainable design."

Sustainable design principles will also be employed in San Jose's police substations and fire stations, recreational facilities, library bond projects, the Airport Expansion Project, and the new Civic Center. Calming in its predictability is that the return on this investment is certain. The environmental and aesthetic benefit is clear; what is surprising to some is that the payback period on the initial investment of 2 to 3 percent is stunningly short. In an October 2003 report entitled "The Costs and Financial Benefits of Green Buildings" prepared for California's Sustainable Building Task Force, "traditional" building costs were compared with costs associated with building "green." In the most comprehensive analysis of the financial costs and benefits of sustainable design/green building conducted to date, the report found that an upfront investment of less than two percent of construction costs yields a life cycle savings of over 10 times the initial investment.

The City is equally committed to a green building program that recognizes the importance of outreach and education if it is to move into the private sector. "I have always thought the greatest gift we could offer businesses in tough times is the knowledge that sustainable design (retrofit projects as well) can provide substantial savings towards your monthly overhead," adds Councilmember LeZotte. "The City Environmental Services Department (ESD) and PG&E have partnered to host a series of education courses at the South Bay Pacific Energy Center that are extremely valuable." These classes are held each spring and fall and are designed to provide the participants with the most current information on sustainable building practices. Topics include: mechanical control systems, day lighting, photovoltaics and energy management systems. A broad range of professions attend these classes including architects, facility managers, government officials and staff, mechanical engineers and representatives from the construction industry.

San Jose is on the map as a city that takes its green building seriously. The Green Building Program has seen tremendous strides throughout the City departments in the enthusiasm, level of commitment, and creativity of the staff involved in the program. The City is investigating potential financial incentives for encouraging green buildings in the private sector, in an effort to maintain the leadership role it has assumed. "I am so proud of the City of San Jose for recognizing the promise of stewardship," remarks Councilmember LeZotte. "We have taken the knowledge, and the numbers, and made sense of them."

For more information, visit the City of San Jose Green Building Website at: http://www.ci.san-jose.ca.us/esd/gb-home.htm

Sustainable Design for the
New San Jose Civic Center

BY RICHARD MEIER & PARTNERS AND BRUCE MCKINLAY, OVE ARUP & PARTNERS

Sustainable design is not applied to a completed architectural schematic; it must be incorporated in the development of the first conceptual sketches. For this process to happen, all parties must understand their options and opportunities.

Richard Meier & Partners' recent commissions have incorporated energy-efficient cladding, daylighting systems, natural ventilation, mechanical systems, and integrated sunscreens. Many of our projects with "green" building considerations have been designed with Ove Arup Consulting Engineers and Fisher Marantz Renfro Stone, Inc., who are members of our Design Team for the San Jose Civic Center.

The San Jose climate, with its predictable weather patterns, provides ideal conditions for many sustainable design options. Our approach to sustainable design considers life cycle cost analysis, building form and location, building envelope, materials of construction, and building systems, equipment and controls.

The new San Jose Civic Center has been designed to integrate many sustainable design features. The original building site was a designated EPA Brownfield where remediation efforts where made to remove all hazardous materials to make way for the new building.

The building's massing and orientation were designed to optimize the use of natural day light and to provide a connection

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between the indoor and outdoor space. To accomplish this effect, the tower's floor plates were designed relatively narrow so all occupants could have a clear view to the outside and benefit from the infusion of natural light. Photo sensors have been provided to automatically turn off artificial lighting during daylight hours, resulting in significant energy savings. All lighting systems have been provided with high-efficiency electronic ballasts and lamps, as well as motion detectors to contribute to additional energy savings.

The exterior façade of the building has been provided with horizontal and vertical shading devices that have been engineered to screen interior spaces from direct solar radiation and glare, thereby reducing building cooling loads and improving occupants' comfort. High performance low E glass has been installed in all windows to reduce building cooling and heating energy cost.

In addition to the features indicated above, high efficiency air conditioning systems have been provided as indicated below to further reduce energy consumption resulting in the New Civic Center, performing approximately 20 percent better in energy efficiency then required by the State Energy Code:

- High efficiency electric chillers — .57 kw/ton with no CFC refrigerants
- High efficiency heating boilers with low Nox emissions — 25 ppm
- Variable primary flow pumping and air flow systems driven by premium efficiency motors that automatically adjust air and water flow to match actual building loads
- Demand control ventilation that monitors the space's CO_2 levels and automatically adjusts the amount of outside air delivered to the spaces
- Radiant cooling/heating floor slab in the Rotunda that will allow the air conditioning system to be turned off and door and vents opened so that natural ventilation can be used to condition the space

The Civic Center's plumbing systems have been designed to utilize the City's reclaimed water system to flush urinals, toilets and provide make-up water to the building's cooling towers and water features. As a result, the building's potable water consumption will be reduced over 30 percent as compared to a typical office building

There are a number of other sustainable features that have been integrated into the design of the Civic Center, and using USGBC LEEDTM rating system the building could achieve approximately 33 points to qualify for a silver rating.

West Valley Branch Library

BY ROB QUIGLEY ARCHITECTS AND SIMON & ASSOCIATES

The West Valley Branch Library is a 20,000 square-foot building that replaces an outdated library that was located on the same property. The new library features a large children's area and group study rooms for teens and adults. It was completed in the spring of 2003.

The library is designed to serve as a practical example of environmentally responsible architecture. It is the City of San Jose's first project to be LEED certified, and it is the first library in the world to receive LEED certification.

The project incorporated a variety of green strategies, addressing site, water, energy, materials and resources, and indoor environmental quality issues. The following are just a few examples:

- The site's mature, existing trees were preserved. Also, the landscaping is drought tolerant and features high-efficiency irrigation controls to reduce the use of water.
- Air conditioning is kept to a minimum through carefully shaded windows, insulation, and an under-floor mechanical system. In addition, thick concrete block walls add thermal mass to the structure.
- The building is carefully designed to minimize the use of artificial light sources, for energy savings as well as indoor environmental quality. Clerestory windows and skylights help bring in daylight. Photo cells turn off lights when daylighting is adequate.
- Green materials are also featured in the project. Half of the wood used for the project was FSC-certified wood. Many other materials have recycled content, including the ceramic tile, carpeting, and flooring. Low-emitting materials were also used, including low-VOC paints and adhesives. In addition, more than 95 percent of the construction and demolition waste was recycled.

Among the most unique features of the library are the fanciful public art installations situated inside the building and outside near the building's entry. The artworks' plant themes reflect the area's agricultural past, and the artworks are made of green materials, including found objects, sustainably harvested wood, and low-VOC paint. The cabbage sculpture near the entryway acts as a passive water feature, fed by stormwater and dew that flows from the roof.